Time to Get Started on Your NSF CAREER Proposal

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Some of you are still slogging through the snow from the most recent winter storm, so you may find it hard to believe that July is not far off, but if you're planning to submit an NSF CAREER proposal, it's time to get started. You may not have large blocks of time right now to dedicate to writing, but you can complete lots of tasks in the background while you're finishing up the Spring semester.

Make sure you've selected the right NSF program and talk to the program director.

NSF CAREER proposals must be submitted to a specific NSF core program; if you choose a program that doesn't fit your research, even a great proposal may be doomed. (Sometimes, the program director will make a special effort to redirect your proposal to the correct program, but you shouldn't count on that.) If you're not sure which program is the best for you, first use the NSF website to find and read the Program Descriptions and the abstracts of projects recently funded by each program you're considering. We've posted a video showing, step-by-step, how do that here. Once you've narrowed it down, contact the program director. The best way to contact the program director is to first email her with a concise description of your research topic (don't attach anything – include two or three short paragraphs in the body of the email describing your project). Ask in the email if it would be possible to set up a time to talk to her on the phone. The purpose of this call is two-fold: (1) make sure that your research topic is, indeed, something that fits that particular program; and (2) make the program director aware that you'll be applying and solicit advice from her. Most program directors strongly encourage PIs to contact them before submitting—particularly in the case of CAREER proposals—and this is a good time to start trying to schedule that conversation.

Start sketching out your research plan.

If you are currently pursuing more than one line of inquiry in your research, it's time to decide which one you'll focus on in this proposal. Remember that you need to be proposing something exciting, not incremental, for a CAREER. On the other hand, you need to have a track record of publications in the topic area or, failing that, strong preliminary results. CAREER reviewers commonly fault these proposals for failing to show sufficient impact in the field. Your program director can advise you whether your proposal seems to meet the CAREER impact threshold.

Once you've settled on your research topic, you'll need to scope your project plan to fit a five-year CAREER grant. Decide what your specific research questions and project outcomes will be, and sketch out a rough flow chart showing your major research tasks and the time required to complete each of them. This project should take you substantially along the path toward a long-term research goal that will significantly enhance your career. At the same time, the outcomes of the project itself should be significant. CAREER PIs commonly fail to scope

their projects appropriately. Often, reviewers state that the project is overly ambitious and can't realistically be completed in five years. On the other hand, you don't want to promise too little. It can be helpful to talk to your colleagues and mentors about your project ideas and get their input on whether the scope is reasonable.

Start working on your Education Plan.

The NSF CAREER differs from other NSF grants in setting much higher expectations for the project's Education Component. Just as you couldn't make up your research plan in the three weeks before the proposal is due, don't expect to pull your Education Plan out of a hat. If you haven't yet settled on the topics you'll address in your Education Plan, this is a good time to start working on that. What issues and needs do you see related to education in your discipline, at your institution, or in your region? What are you passionate about? What's already going on at your institution that you could tie into? Be sure that you have at least one activity that addresses enhancing diversity in your field. Remember that if you win this grant, you'll spend considerable effort on the Education Component of your project, and it will likely form the basis for more education activities that will be a part of future proposals to NSF, so be sure to propose something that you would really like to work on. If you've already done something related to that topic, that's even better—you'll want to include a discussion in your proposal of those preliminary activities and how they inspired your proposed Education Plan.

Start your literature search.

Once you've settled on the topics of your Research and Education Components, conduct fresh literature searches on both topics to ensure that you're up-to-date on the state of the art in those specific areas. For your Education Component, read the literature cited in the CAREER solicitation, but also research the educational literature specifically related to your specific educational topic or topics. So, for example, if you want to introduce research-type activities into the second-year Statistics class that you teach, look to see what others have done to develop research skills in undergraduates in classroom settings. You'll want to cite this literature in your proposal and draw from it when deciding exactly what your plan will be. A good place to start searching the educational literature is the Education Resources Information Center (ERIC).

Start recruiting collaborators, if needed.

The NSF CAREER allows only a PI—no co-PIs or Senior Personnel. However, you can have unpaid collaborators who provide limited assistance or resources needed for your project. These might include access to an instrument or hard-to-get material, or advice from an expert in Educational Psychology on how to conduct educational assessments as part of your Education Component. A local school principal might agree to work with you to develop an after-school science activity, or the PI of a Research Experiences for Teachers site at your institution could commit to arrange for two teachers to participate in research in your lab. As with most collaborations, you'll have more success if you approach your potential collaborators early and solicit their advice on exactly how to structure the activity. For example, the school principal is likely to have excellent advice for you on what has and hasn't worked in after-school

outreach activities. The researcher providing you with the hard-to-get materials may have advice for you on processing methods for the material.

So start identifying potential collaborators now, schedule a time to talk to them face-to-face if you can, and include them in your planning process. Remember, also, that you'll need to get a letter of collaboration from each of your collaborators, so discuss with them what should be in that letter.

Start roughing out your first draft.

Once you've finished steps 1 through 4, go ahead and outline your project description and start filling it in with notes describing what each section should contain. Keep this draft very rough, and use it as an instrument to help you solidify your ideas and identify holes. For example, it may become obvious that you need to run an additional experiment to address a technical issue. Or it may become clear that you need to find some papers to substantiate a particular point. By putting together a very rough draft months before the proposal is due, you'll give yourself the time and space to work on your ideas without the pressure to get everything right immediately (a sure prescription for writer's block). Many of these activities can be done piecemeal as you have time over the rest of this semester, and by starting now, you'll have time for ideas to percolate. The result will be a better thought-out project plan, which will make the proposal writing easier.

Other Resources

CAREER FAQs

Upcoming NSF CAREER Webinar (April 18th)